



Engineering Structures for Life



TRANSPORTS - RAILWAYS

Tua Railway slope stabilization

ABOUT

The scope of work was the rehabilitation and stabilization of 30 slopes (totalizing 2,6 kilometers) located at Tua railway, between kilometre 21+200 (Brunheda) and 54+100 (Mirandela) in Northeast of Portugal, to provide a safer operation of the railway.

It was developed a geological and geotechnical characterization of the slopes. The data were then processed using DIPS software (RocScience ®), followed by stability analysis and the definition of the reinforcement solutions using the software according to the failure modes, e.g. Slide and Swedge (RocScience ®) and GEO5 (Fine ®).

The phenomena of instability were generally related to the rock falls (plane, wedge and toppling failures, etc.) or landslides (disintegration of rocks).

This project included the following activities: local inspections, topographic surveys, evaluation, and characterization, diagnosis and the engineering solutions definition. The environmental, patrimonial and natural beauty of the landscape had a significant impact on the design.

The main works were:

- Steel wire meshes (draped mesh, draped mesh with cable-net and a nailed mesh reinforced with cables)
- Rock Bolts
- Rock support
- Shotcrete with nails
- Protection against erosion due to rockfall
- Cut slopes
- Deep drainage (geo-drains)
- Improvement of schists masonry walls

FACTS

Year: 2018

Client: Mystic Tua, S.A.

Services: Inspection and railway rehabilitation, Railway Engineering, Railway geotechnics, Geological and geotechnical characterization, Geotechnical Engineering, Drainage design

TEAM

LOCATION

Tua Railway (Brunheda - Mirandela), Portugal

- Gabions walls